



SONAbeam™ E Series

At fSONA, we deliver optical wireless connectivity solutions that bridge network gaps with unmatched simplicity and performance. From point-to-point private connections to meshed networks, SONAbeam™'s protocol transparent technology gives carrier, service provider and enterprise customers the unique ability to integrate free space optics (FSO) seamlessly and quickly into any existing network infrastructure.

Utilizing advanced FSO technology at the eye-safe 1550nm wavelength, fSONA has created the most powerful FSO system in its class. The SONAbeam™ E series is a compact, lightweight unit contained in a rugged, environmentally-sealed housing. The SONAbeam™ E series offers speeds of 1.5 Mbps up to 160 Mbps.

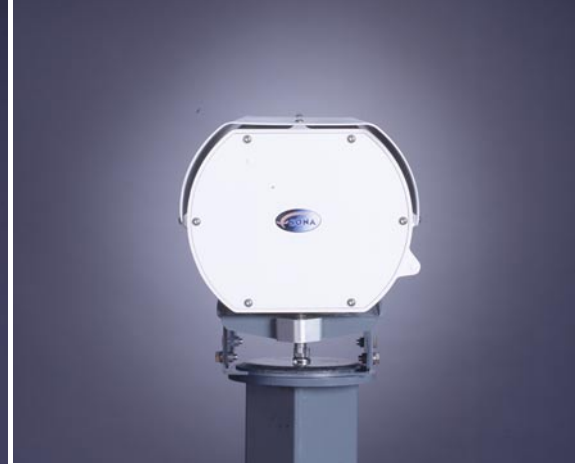
By transmitting through the atmosphere, SONAbeam™ dispenses with the substantial costs of digging up streets to install fiber. And unlike RF wireless technologies, SONAbeam™ eliminates the need to obtain costly spectrum licenses and is virtually impossible to intercept. All you need to get connected with SONAbeam™ is direct line of sight. No license. No digging. No problem.

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SONABeam™ 8-E

Free-Space Optical

Transmission rate	1.5 to 10.25 Mbps (datarate transparent or reclocked)
Clocked datarates	E1, T1, 4xE1, 4xT1
Range	3 dB/km (clear air) 10 dB/km (extreme rain)
	50 to 4950 m (160 ft to 2.9 mi) 50 to 2175 m (160 ft to 1.3 mi)
Laser output power	100 mW (2 x 50 mW)
Wavelength	1550 nm
Transmitter type	Directly modulated laser diode
Clear receive aperture	10 cm (4 in) effective clear
Clock and data recovery	Yes, bypass for rate-transparent

Interface Options

Option 1	Interface type	MM Fiber, SC terminated
	Transmission	Datarate transparent, 1.5 - 160 Mbps
	Fiber xmtr output	-20 dBm (min), -14 dBm (max)
	Fiber rcvr input	-30 dBm (min), -14 dBm (max)
	Fiber xmtr wavelength	1310 nm nominal (1280 nm - 1335 nm)
	Fiber rcvr wavelength	1310 nm nominal (1280 nm - 1335 nm)
Option 2	Interface type	SM fiber, SC terminated
	Data transmission	Datarate transparent, 1.5 - 160 Mbps
	Fiber xmtr output	-15 dBm (min), -8 dBm (max)
	Fiber rcvr input	-31 dBm (min), -8 dBm (max)
	Fiber xmtr wavelength	1310 nm nominal (1280 nm - 1335 nm)
	Fiber rcvr wavelength	1310 nm nominal (1280 nm - 1335 nm)

Mechanical / Environmental

Operating temperature	-40 to 50°C (-40 to 122°F)
Solar filters	2 spatial, 2 spectral
Pointing stability	Operation Survivability
	120 km/hr (75 mp/h) 160 km/hr (100 mp/h)
Weight	10 kg (22 lbs)
Environmental seal	Water tight, IP66 + NEMA-4 Certified
Dimensions (W*H*D)	cm: 25 x 33 x 46 (in: 10 x 13 x 18)

Electrical

Input voltage	22 - 57 VDC or 100-240 VAC
Power (electronics, heaters)	30 watts max
Power supply	Telco grade, > 2 mil. hr. MTBF for DC

Element Management and Control

Management interface	Serial (DB9) or Ethernet (RJ-45, IP addressable)
SNMP	Embedded agent v.1
GUI control program	SONABeam™ Terminal Controller STC v.3
Command line interface	Via RS232 or IP address
Key parameters monitored	Receive signal strength, Laser modulation current, 5 V internal supply voltage, 5 V internal supply current, Internal temperature, Interface card type inserted, Input signal presence, FSO data lock

Carrier-Class Reliability and Durability

Redundant transmitters	2 independent lasers, laser drivers
Window heating	Prevents fogging, snow/sleet buildup
Laser cooling	Cast aluminum heat sink
Structure	Cast aluminum/steel housing & mount
Service life	15 years

Certifications and Classifications

	USA/Canada	Europe
Laser	CDRH 21, CFR 1040, including Laser Notice 50, Class 1M; ANSI Z136.1 & Z136.6, Class 1	IEC 60825-1, Class 1M
EMC	FCC - Part 15/ICES - 003	EN55022 - emissions EN55024 - immunity EN60950 (CB scheme)
Electrical	UL 60950/CSA 60950	